



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/459,380	12/13/1999	PETER ALLEN HUBOI	03384.0346-0	1069
Docket Clerk P O Drawer 800889 Dallas, TX 75380			EXAMINER GODBOLD, DOUGLAS	
			ART UNIT 2626	PAPER NUMBER
			MAIL DATE 01/08/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

09/459,380

**Applicant(s)**

HUBOI, PETER ALLEN

**Examiner**

DOUGLAS C. GODBOLD

**Art Unit**

2626

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12, 14-25 and 27-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-12, 14-25 and 27-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

### **DETAILED ACTION**

1. This Office Action is in response to correspondence filed October 20, 2008 in reference to application 09/459,380. Claims 1-12, 14-25, and 27-54 are pending and have been examined.

### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 20, 2008 has been entered.

### ***Response to Amendment***

3. The amendments filed October 20, 2008 have been accepted and considered in this office action. Claims 1, 4, 10, 17, 20, 23- 47, and 48 have been amended, and claims 13 and 26 have been cancelled.

### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1,4-5,8-10,22-23,28-29,47 and 48 have been considered but are moot in view of the new ground(s) of rejection.

5. Applicant's arguments filed October 20, 2008 with respect to claims 30, 37, 41, 44, 49, and 50 have been fully considered but they are not persuasive.

6. With regards to applicant's arguments, see Remarks pages 31-32, that neither McDonough or Furui teaches the limitations of "analyzing a voice message to determine if the voice message exhibits a "predetermined pattern of speech," where the predetermined pattern of speech represents "at least one of a tone of speech in the voice message and a frequency of the speech in the voice message"" the examiner respectfully disagrees. While applicant correctly asserts on page 32 that HMMs generally operate on a phoneme based level and do not detect broader emotional patterns such as urgency, it is noted that all that is required in the claims is determining a pattern in speech from tone of frequency. It is noted that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). As claims must be given the broadest reasonable interpretation during examination, one can fairly read the claims to read that the patterns on a phoneme by phoneme level as described in the working of HMM models taught by Furui. While the specification does suggest using patterns that encompass more than a phoneme, this is not reflected in the language of the claims.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 4 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 4 and 20 have been amended to require that the user specified word or phrase is performed after receiving the voice message. However upon examination, no support could be found in the specification (of claims as originally filed to support this amendment.

***Claim Rejections - 35 USC § 103***

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**McDonough and Epstein**

10. Claims 1, 4-10, 14-17, 20-23, 26-29, 47, 48, and 51-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonough et al. [US Patent 5,625,748] in view of Epstein et al. [US Patent 6,327,343], both already of record.

11. Regarding claim 1, McDonough describes the embodiment for processing untranscribed speech by describing the content and functionality of the recited limitations recognizable as a whole to one versed in the art as the following terminology:

voice representations and voice messages [at column 6, lines 23-29, as untranscribed speech data];

storing voice, corresponding to a word or phrase [at column 2, lines 1-17, as training words to the vocabulary, and at column 5, lines 47-48, as a vocabulary of words and phrases for speech events];

each voice representation is associated with a value [at column 6, lines 41-42, as parameter values for individual event distributions];

storing actions [at column 2, lines 14-17, as create a new node associating an action with a word];

receive a voice message [at column 1, lines 53-54, as provide an input speech message];

selecting a user specified word or a user specified phrase by a user, the selected user specified word or phrase corresponding to a word or phrase having a corresponding stored voice representation (column 12 line 13 events are selected by human operator from list of possible events, see figure 5 as well.)

analyze the voice message to determine if one or more stored voice representations corresponding to the selected user word of phrase occur in the message [at column 5, lines 43-50, as process a spoken message to produce a signal

for the potential speech events in the spoken data [if user selection is used as described in column 12 line 13, then it is inherent that the models will correspond to the selection];

generate a final criteria measurement value associated with the voice message [at column 7, lines 28-44, as summing confidence scores over the speech data];

the final criteria measurement value based on the value associated with each determined stored voice representation occurring in the voice message [column 6 line 4-42, models are trained and parametric probabilistic models and parameter values are developed for stored representations. Column 6 line 1 the topic classifier uses model parameters determined in training. Therefore it is inherent that the confidence scores will be determined in part by this probabilistic parameters.];

perform one (or more) action(s) if the stored voice representations are found in the voice message [at column 2, lines 1-8, as route the message according to the action associated with the word];

performing the (stored) action based on the final criteria measurement value [at column 12, lines 28-41, as sort, classify or route based on the topic, wherein at column 5, line 64-column 6, line 1 the topic choice is a confidence score that a topic is present].

McDonough does not specifically teach that the selected word is received from the user as opposed to being selected only.

In the same field of topic determination, Epstein teaches that a user can input key words into the device as a part of programming (column 12 lines 18-37.)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the input means of Epstein as a way of performing the

selection in McDonough in order to allow the user to select the words without having to user cumbersome lists or menus.

12. Claim 4 is set forth including the limitations of claim 1. McDonough and Epstein describes those limitations as indicated there. McDonough also describes additional limitations as follows:

after receiving the voice message, receiving the user-specified word or phrase from the user (column 12 lines 27-42, topic analysis can be carried out on recordings, which could obviously be stored in the system before phrases are selected by the user.); and

after receiving the user-specified word or phrase from the user, performing the step of analyzing (this order is inherent for the device to operate. The model parameters must be determined before analyzing can take place).

13. Claim 5 is rejected using the same rationale as in the previous Office action that was mailed November 20, 2002 as paper 3, and is reproduced here:

Claim 5 is set forth including the limitations of claim 1. McDonough and Epstein describes those limitations as indicated there. McDonough also describes additional limitations as follows:

the user specifying actions to be performed if the voice representation is found in the voice message [at column 2, lines 1-24, as the user specifies the correctness of the



action associated with the word to route the message according to the action associated with the word];

storing the user specified actions [at column 2, lines 1-24, as the user specifies the correctness of the action to create a new node associating an action with a word];

the user specified actions are included in performing the stored actions [at column 2, lines 1-24, as route the message according to the action associated with the word for which the user specifies the correctness of the action associated with the word].

14. Claim 6 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 6 is set forth including the limitations of claim 1. McDonough describes and make obvious those limitations as indicated there. McDonough [at column 12, lines 40-41] also describes classifying stored voice messages.

McDonough, however, does not explicitly describe classifying the message as urgent.

Epstein [at column 8, lines 23-34] also describes processing a voice message as the embodiment for stored audio data. Epstein describes:

marking the message as urgent [at column 17, line 40, as adding an urgency stamp].

Although McDonough describes classifying message, McDonough's does not enumerate any particular classifications. In view of Epstein's labeling a message as

urgent, it would have been obvious to one of ordinary skill in the art of message handling at the time of invention to include Epstein's concept of marking as urgent as a classification for McDonough's messages because that would have enabled signaling the addressee that an urgent message is available.

15. Claim 7 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 7 is set forth including the limitations of claim 1. McDonough describes and make obvious those limitations as indicated there. McDonough [at column 12, lines 36-41] also describes routing a phone call based on the message.

McDonough, however, does not explicitly describe calling a pager. [at column 8, lines 23-34] also describes processing a voice message as the embodiment for stored audio data. Epstein describes:

calling a pager [at column 4, lines 1-3, as transmit a message to the user's pager].

Although McDonough describes routing calls and messages, McDonough does not enumerate any particular terminal type for receiving the message. In view of Epstein's transmission to a pager, it would have been obvious to one of ordinary skill in the art of message handling at the time of invention to include Epstein's ability to call a pager for McDonough's messages because that would have enabled signaling the addressee when the user is not at home or is out of the office, as Epstein describes [at column 14, lines 47-48].

16. Claim 8 is rejected using the same rationale as in the previous Office action that was mailed November 20, 2002 as paper 3, and is reproduced here:

Claim 8 is set forth including the limitations of claim 1. McDonough and Epstein describes and make obvious those limitations as indicated there. Because McDonough's embodiments are directed equally to either processing of phone calls or processing of stored messages, McDonough describes:

forwarding the voice message [at column 12, lines 36-41, as routing a phone call based on the message, where the message is forwarded in the embodiment processing a stored message].

17. Claim 9 is rejected using the same rationale as in the previous Office action that was mailed November 20, 2002 as paper 3, and is reproduced here:

Claim 9 is set forth including the limitations of claim 1. McDonough and Epstein describes and make obvious those limitations as indicated there. Because McDonough's embodiments are directed equally to either processing of phone calls or processing of stored messages, McDonough describes:

the voice message is received over a telephone line [at column 2, line 19, as speech over the telephone].

18. Regarding claim 10, McDonough describes the claimed limitations as a whole recognizable to one versed in the art as the embodiment for processing untranscribed

speech by describing the content and functionality of the recited limitations recognizable as a whole to one versed in the art as the following terminology:

voice representations and voice information from a person [at column 6, lines 23-29, as untranscribed speech data, where at column 2, lines 25-26, the user speaks naturally];

storing voice, corresponding to a word or phrase [at column 2, lines 1-17, as training words to the vocabulary, and at column 5, lines 47-48, as a vocabulary of words and phrases for speech events];

each voice representation is associated with a value [at column 6, lines 41-42, as parameter values for individual event distributions];

storing actions [at column 2, lines 14-17, as create a new node associating an action with a word]; receive voice information from a person over a communications line [at column 2, lines 18-19, as conversational speech over the telephone];

selecting a user specified word or a user specified phrase by a user, the selected user specified word or phrase corresponding to a word or phrase having a corresponding stored voice representation (column 12 line 13 events are selected by human operator from list of possible events, see figure 5 as well.)

analyze the voice message to determine if one or more stored voice representations corresponding to the selected user word of phrase occur in the message [at column 5, lines 43-50, as process a spoken message to produce a signal for the potential speech events in the spoken data If user selection is used as described column 12 line 13, then it is inherent that the models will correspond to the selection];

generate a final criteria measurement value associated with the voice information [at column 7, lines 28-44, as summing confidence scores over the speech data];

the final criteria measurement value based on the value associated with each determined stored voice representation occurring in the voice message [ column 6 line 4-42, models are trained and parametric probabilistic models and parameter values are developed for stored representations. Column 6 line 1 the topic classifier uses model parameters determined in training. Therefore it is inherent that the confidence scores will be determined in part by this probabilistic parameters.];

perform actions if the voice information includes a stored voice representation [at column 12, lines 28-41, as respond to, route, or classify the phone call or incoming voice message using the sorting for detection of speech data of interest];

performing the stored action based on the final criteria measurement value [at column 12, lines 28-41, as sort, classify or route based on the topic, wherein at column 5, line 64-column 6, line 1 the topic choice is a confidence score that a topic is present].

McDonough does not specifically teach that the selected word is received from the user as opposed to be being selected only.

In the same field of topic determination, Epstein teaches that a user can input key words into the device as a part of programming (column 12 lines 18-37.)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the input means of Epstein as a way of performing the selection in McDonough in order to allow the user to select the words without having to user cumbersome lists or menus.

19. Claim 14 is set forth including the limitations of claim 10 and with additional limitations similar to limitations set forth in claim 5. McDonough and Epstein describes the limitations as indicated there.

20. Claim 15 is set forth including the limitations of claim 10.+ McDonough and Epstein describes those limitations as indicated there. McDonough also describes additional limitations as follows:

receiving voice information during a call [at column 12, lines 37-38, as spoken message by a phone call from a caller];

compiling statistics on the call [at column 7, lines 46-47, as compute the scoring statistic given the data in the message].

21. Claim 16 is set forth including the limitations of claim 10 and with additional limitations already described there.

22. Regarding claim 17, McDonough describes the claimed limitations as a whole recognizable to one versed in the art as the embodiment for processing untranscribed speech by describing the content and functionality of the recited limitations recognizable as a whole to one versed in the art as the following terminology:

voice representations and voice messages [at column 6, lines 23-29, as untranscribed speech data];

storing voice, corresponding to a word or phrase [at column 2, lines 1-17, as training words to the vocabulary, and at column 5, lines 47-48, as a vocabulary of words and phrases for speech events];

storing actions [at column 2, lines 14-17, as create a new node associating an action with a word];

receive a voice message [at column 1, lines 53-54, as provide an input speech message];

selecting a user specified word or a user specified phrase by a user, the selected user specified word or phrase corresponding to a word or phrase having a corresponding stored voice representation (column 12 line 13 events are selected by human operator from list of possible events, see figure 5 as well.)

analyze the voice message to determine if one or more stored voice representations corresponding to the selected user word or phrase occur in the message [at column 5, lines 43-50, as process a spoken message to produce a signal for the potential speech events in the spoken data If user selection is used as described column 12 line 13, then it is inherent that the models will correspond to the selection];

generate a final criteria measurement value associated with the voice message [at column 7, lines 28-44, as summing confidence scores over the speech data];

the final criteria measurement value based on the value associated with each determined stored voice representation occurring in the voice message [ column 6 line 4-42, models are trained and parametric probabilistic models and parameter values are developed for stored representations. Column 6 line 1 the topic classifier uses model

parameters determined in training. Therefore it is inherent that the confidence scores will be determined in part by this probabilistic parameters.];

each voice representation is associated with a final criteria measurement value [at column 7, lines 28-44, as putative words and phrases with confidence scores are summed over the speech data];

perform one (or more) action(s) if the stored voice representations are found in the voice message [at column 2, lines 1-8, as route the message according to the action associated with the ' word];

performing the (stored) action based on the final criteria measurement value [at column 12, lines 28-41, as sort, classify or route based on the topic, wherein at column 5, line 64-column 6, line 1 the topic choice is a confidence score that a topic is present];

a storage device for storing the parameters associated with the claimed functionality [at column 12, line 2, as the internal structure of the event detector, for the example at column 2, lines 1-9, the word nodes and action nodes];

a processor for accomplishing the claimed functionality [at column 5, lines 45-46, as a speech event frequency detector].

McDonough does not specifically teach that the selected word is received from the user as opposed to be being selected only.

In the same field of topic determination, Epstein teaches that a user can input key words into the device as a part of programming (column 12 lines 18-37.)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the input means of Epstein as a way of performing the



selection in McDonough in order to allow the user to select the words without having to user cumbersome lists or menus.

23. Claim 20 is set forth including the limitations of claim 17. McDonough and Epstein describes the limitations as indicated there. McDonough also describes additional limitations as follows:

after receiving the voice message, receiving the user-specified word or phrase from the user (column 12 lines 27-42, topic analysis can be carried out on recordings, which could obviously be stored in the system before phrases are selected by the user.); and

after receiving the user-specified word or phrase from the user, performing the step of analyzing (this order is inherent for the device to operate. The model parameters must be determined before analyzing can take place).

24. Claim 21 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 21 is set forth including the limitations of claim 17 and with additional limitations similar to limitations set forth in claim 5. McDonough describes the limitations as indicated there. McDonough [at column 2, lines 17-28] receives input from the user for establishing user selection of words and actions.

McDonough, however, does not explicitly describe an interface between the user and the speech event frequency detector.

Epstein [at column 8, lines 23-34] also describes processing a voice message as the embodiment for stored audio data. Epstein also describes:

a user interface [at column 6, lines 7-13, as a programming interface].

Although McDonough describes receiving input from the user, McDonough does not explicitly describe any means to accept this input. Because McDonough describes user input, it would have been obvious to one of ordinary skill in the art of processing devices at the time of invention to include Epstein's concept of a programming interface with McDonough because that would provide the means for the user to provide the input to train McDonough's neural network to the words and actions.

25. Claim 22 is set forth including the limitations of claim 17 and with additional limitations similar to limitations set forth in claim 9. McDonough and Epstein describe the limitations as indicated there.

26. Claims 23, 28, and 29 are set forth with limitations similar to claims 10, 15, and 9. McDonough and Epstein describes the limitations as indicated there. McDonough also describes additional limitations as follows:

a storage device for storing the parameters associated with the claimed functionality [at column 12, line 2, as the internal structure of the event detector, for the example at column 2, lines 1-9, the word nodes and action nodes];

a processor for accomplishing the claimed functionality [at column 5, lines 45-46, as a speech event frequency detector].

27. Claim 27 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 27 is set forth including the limitations of claim 23 and with additional limitations similar to limitations set forth in claims 14 and 21. McDonough and Epstein describe and make obvious the limitations as indicated there.

28. Claim 47 is set forth with limitations similar to limitations set forth in claim 1. McDonough and Epstein describes the limitations as indicated there. McDonough also describes additional limitations as follows:

means for storing the parameters associated with the claimed functionality [see Fig. 1, items 20, 22, and their descriptions especially at column 12, line 2, of the internal structure of the event detector, for the example at column 2, lines 1-9, the word nodes and action nodes];

means for receiving and analyzing a voice message and accomplishing the claimed functionality [see Fig. 1, items 10, 12, 16, 18, and their descriptions, especially at column 5, lines 45-46, of a speech event frequency detector, topic classifier and classifier output].

29. Claim 48 is set forth with limitations similar to limitations set forth in claim 23. McDonough and Epstein describes the limitations as indicated there, where the storage

device and the processor are the means for storing, means for receiving, and means for analyzing.

30. Claim 51 is set forth with limitations similar to limitations that are also set forth in claim 1. McDonough and Epstein describes the limitations as indicated there.

McDonough [at column 5, lines 45-46] also describes a processor for accomplishing the claimed functionality.

McDonough, however, does not explicitly describe that the speech event frequency detector is computer-implemented and with computer-readable contents.

Epstein [at column 8, lines 23-34] also describes processing a voice message as the embodiment for stored audio data. Epstein describes:

a computer readable medium whose contents cause the computer to perform the procedure [at column 4, lines 4-30, as associated memory for software implemented on a computer to accomplish the functionality].

To the extent that McDonough's system does not necessarily contain typical computer hardware and software, it would have been obvious to one of ordinary skill in the art of implementing functional descriptions of operations at the time of invention to include Epstein's concept of computer implementations by software loaded in computer-readable memory to achieve McDonough's speech processing functionality because that would have provided the best implementation under particular circumstances identified and evaluated by a skilled artisan. For example, it is within the ordinary skill of an artisan to determine that software elements, such as Epstein's concept, benefits

changing processing functions or adding other processing functions because software elements are more easily modified than hardware elements.

31. Claim 52 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

32. Claim 52 is set forth with limitations similar to limitations set forth in claim 23 and with additional limitations similar to limitations set forth in claim 51. McDonough and Epstein describe and make obvious the limitations as indicated there.

**McDonough Epstein and Furui**

33. Claims 2, 3, 11, 12, 18, 19, 24, 25, 31, 33-34, 38, 42, 45, and 53-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonough et al. [US Patent 5,625,748] and Epstein [US Patent 6,327,343] in view of Sadaoki Furui, "Digital Speech Processing, Synthesis, and Recognition," Marcel Dekker, Inc., New York, 1989, pp. 225-289, both already of record.

34. Claim 2 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 2 is set forth including the limitations of claim 1. McDonough and Epstein describes those limitations as indicated there. McDonough [at column 7, lines 26-48] also describes phonetic wordspotting for the preferred embodiments.

Furui describes:

a voice message [at page 226, lines 19-22, as speech waveforms];  
each stored voice representation is a phoneme representation of a word or phrase [at page 244, lines 1-4, as reference templates use phonemes concatenates to represent words].

Although, McDonough describes phonetic wordspotting, McDonough does not explicitly describe phoneme models.

To the extent that McDonough's stored voice representations of words are not necessarily phoneme representations, it would have been obvious to one of ordinary skill in the art of speech recognition at the time of invention to include Furui's phoneme based lexicon for wordspotting as McDonough's trained vocabulary, because McDonough points out phonetic wordspotting as preferred.

35. Claim 3 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 3 is set forth including the limitations of claims 1-2. McDonough Epstein and Furui describe and make obvious those limitations as indicated there. McDonough [at column 11, lines 9-11 ] also describes implementing algorithms in the C programming language for computing.

McDonough and Furui, however, do not explicitly describe digital conversion of analog signals. [at column 8, lines 23-34] also describes processing a voice message as the embodiment for stored audio data. Epstein describes:

a voice message [at column 8, lines 33-35, as stored audio data];

converting the analog voice message from analog to digital [at column 7, lines 1-5, as convert the analog data, such as an analog recorder, into digital data]; and processing the digitized voice message [at column 9, lines 40-67, as convert voice data].

To the extent that McDonough's data is not innately digitized for the suggested computer algorithms, it would have been obvious to one of ordinary skill in the art of speech processing at the time of invention to include Epstein's analog to digital conversion for McDonough's data or Furui's data because the digital data could be processed on general purpose digital computers or programmable digital signal processors.

For the digital data then, Furui describes:

processing the voice message into phonemes [at page 244, lines 8-28, as short periods of input speech with phoneme-template structure are compared to phoneme reference templates to represent each word by concatenation of phonemes]; and comparing the phonemes from the voice message with stored voice representations [at page 244, lines 42-44, as match the same phoneme positions between the input speech and reference templates].

36. Claim 11 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 11 is set forth including the limitations of claim 10 and with additional limitations similar to limitations set forth in claim 2. McDonough and Epstein and Furui describe and make obvious the limitations as indicated there.

37. Claim 12 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 12 is set forth including the limitations of claims 10-11 and with additional limitations similar to limitations set forth in claim 3. McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

38. Claim 18 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 18 is set forth including the limitations of claim 17 and with additional limitations similar to limitations set forth in claim 2. McDonough and Epstein and Furui describe and make obvious the limitations as indicated there.

39. Claim 19 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 19 is set forth including the limitations of claims 17-18 and with additional limitations similar to limitations set forth in claim 3. McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there. Epstein also describes



further limitations as follows: an analog to digital converter [at column 7, lines 1-5, as an analog-to-digital converter].

40. Claim 24 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 24 is set forth including the limitations of claim 23 and with additional limitations similar to limitations set forth in claim 2. McDonough and Epstein and Furui describe and make obvious the limitations as indicated there

41. Claim 25 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 25 is set forth including the limitations of claims 23-24 and with additional limitations similar to limitations set forth in claim 12. McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there. Epstein also describes further limitations as follows:

an analog to digital converter [at column 7, lines 1-5, as an analog-to-digital converter].

42. Claim 31 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 31 is set forth including the limitations of claim 30 and with additional limitations similar to limitations set forth in claim 3. McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

43. Claims 33 and 34 are set forth including the limitations of claim 30 and with additional limitations similar to limitations set forth in claims 6 and 7. Neither McDonough nor Furui explicitly describes the additional limitations of claims 6 and 7; however, McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

44. Claim 38 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 38 is set forth including the limitations of claim 37 and with additional limitations similar to limitations set forth in claim 12. McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

45. Claim 42 is set forth including the limitations of claim 41 and with additional limitations similar to limitations set forth in claim 21. Neither McDonough nor Furui explicitly describes the additional limitations of claim 21; however, McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

46. Claim 45 is set forth including the limitations of claim 44 and with additional limitations similar to limitations set forth in claim 27. Neither McDonough nor Furui explicitly describes the additional limitations of claim 27; however, McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

47. Claim 53 is set forth with limitations similar to limitations set forth in claim 30 and with additional limitations similar to limitations set forth in claim 51. Neither McDonough nor Furui explicitly describes the additional limitations of claim 51; however, McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

48. Claim 54 is set forth with limitations similar to limitations set forth in claim 37 and with additional limitations similar to limitations set forth in claim 51. Neither McDonough nor Furui explicitly describes the additional limitations of claim 51; however, McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

**McDonough and Furui**

49. Claims 30, 32, 35-37, 39-41, 43-44, 46, and 49-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonough et al. [US Patent 5,625,748] and Epstein [US Patent 6,327,343] in view of Sadaoki Furui, "Digital Speech Processing,

Synthesis, and Recognition," Marcel Dekker, Inc., New York, 1989, pp. 225-289, both already of record.

50. Regarding claim 30, McDonough describes the claimed limitations as a whole recognizable to one versed in the art as the embodiment for processing untranscribed speech comprising:

storing actions [at column 2, lines 14-17, as create a new node associating an action with a word];

receive a voice message [at column 1, lines 53-54, as provide an input speech message];

speech [at column 6, lines 23-29, as untranscribed speech data];

predetermined patterns of speech [at column 7, lines 27-37, as HMMs from training and modeling];

analyze the voice message to determine if it exhibits a predetermined pattern of speech [at column 5, lines 43-50, as process a spoken message to produce a signal for the potential speech events in the spoken data];

perform actions if the predetermined pattern is found in the voice message [at column 2, lines 1-8, as route the message according to the action associated with the word].

Although, McDonough [at column 7, lines 27-44] describes spotting the words and phrases of the speech data using phonetically trained HMMs for the preferred embodiments, McDonough describes using HMMs for this method as known

techniques. Consequently, McDonough does not describe details of the techniques. In particular, McDonough does not explicitly describe HMMs representing either a tone of speech or a frequency of speech.

Furui [at page 255, lines 29-38 & page 258, lines 16-18] describes widely investigated word modeling by phonetic HMMs and that feature vectors are applied in HMMs. Furui describes:

the predetermined pattern representing a tone of speech in the voice message [at page 8, lines 1-15 and Fig. 8.15, as a lattice taking account of allophones, coarticulation, stress, and syllables];

the predetermined pattern representing a frequency (or other) of the speech in the voice message [at page 278, lines 3-9, as Markov models for recognition of input speech converted into spectral feature vectors by DFT].

In view of the teachings of Furui about the essential nature of voice containing frequency and tone, McDonough's stored voice representations must represent the frequency and tone of voice; however, to the extent that McDonough's stored voice representations of phonemes, words, and phrases may not innately represent frequency (or tone), it would have been obvious to one of ordinary skill in the art of speech recognition at the time of invention that Furui's DFT produces frequency spectral parameters to represent the HMMs suitable for implementing McDonough's HMMs for word and phrase spotting, because McDonough points out HMMs as preferred.

Although McDonough prefers HMM representations for the voice, McDonough's omission of particular details regarding HMMs is due to, and is evidence of, the lack of

any need for one of ordinary skill in the art of pattern matching to be reminded of such details.

51. Claim 32 is set forth including the limitations of claim 30 and with additional limitations similar to limitations set forth in claim 5. McDonough and Furui describe and make obvious the limitations as indicated there.

52. Claim 35 is set forth including the limitations of claim 30 and with additional limitations similar to limitations set forth in claim 8. McDonough and Furui describe and make obvious the limitations as indicated there.

53. Claim 36 is set forth including the limitations of claim 30 and with additional limitations similar to limitations set forth in claim 9. McDonough and Furui describe and make obvious the limitations as indicated there.

54. Claim 37 and claims 39 and 40 are set forth with limitations similar to claim 30 and with limitations similar to limitations set forth in claims 14 and 16. McDonough and Furui describe and make obvious the limitations as indicated there, where a stored voice representation is a predetermined pattern of speech.

55. Claim 41 and claim 43 are set forth with limitations similar to limitations set forth in claim 30 and claim 22. McDonough and Furui describe and make obvious the

limitations as indicated there. McDonough also describes additional limitations as follows:

a storage device for storing the information associated with the claimed functionality [at column 12, line 2, as the internal structure of the event detector, for the example at column 2, lines 1-9, the word nodes and action nodes];

a processor for accomplishing the claimed functionality [at column 5, lines 45-46, as a speech event frequency detector].

56. Claim 44 and claim 46 are set forth with limitations similar to limitations set forth in claim 37 and claim 22. McDonough and Furui describe and make obvious the limitations as indicated there. McDonough also describes additional limitations as follows:

a storage device for storing the information associated with the claimed functionality [at column 12, line 2, as the internal structure of the event detector, for the example at column 2, lines 1-9, the word nodes and action nodes];

a processor for accomplishing the claimed functionality [at column 5, lines 45-46, as a speech event frequency detector].

57. Claim 49 is set forth with limitations similar to limitations set forth in claims 30 and 47. McDonough and Furui describe and make obvious the limitations as indicated there.

58. Claim 50 is set forth with limitations similar to limitations set forth in claims 37 and 48. McDonough and Furui describe and make obvious the limitations as indicated there.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS C. GODBOLD whose telephone number is (571)270-1451. The examiner can normally be reached on Monday-Thursday 7:00am-4:30pm Friday 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Application/Control Number: 09/459,380  
Art Unit: 2626

Page 32

DCG  
/Patrick N. Edouard/  
Supervisory Patent Examiner, Art Unit 2626